

## Multiplying and Dividing Rational Expressions

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**Simplify each expression and state all restrictions.**

$$1) \frac{10n}{9n^3} \cdot \frac{3n}{6}$$

$$2) \frac{4}{9x^2} \cdot \frac{7x^2}{8x}$$

$$3) \frac{7m^2(3m+10)}{(m-1)(7m+1)} \cdot \frac{7m+1}{3m+10}$$

$$4) \frac{8r(7r-8)}{8r(8-7r)} \div \frac{r+3}{2}$$

$$5) \frac{35v-20}{v-8} \cdot \frac{1}{7v-4}$$

$$6) (42k+54) \cdot \frac{10k}{70k^2+90k}$$

$$7) \frac{40n-56}{n+10} \div \frac{5n-7}{4n}$$

$$8) 8a^2 \div \frac{10a+5}{2a+1}$$

$$9) \frac{9}{4n^3-40n^2} \div \frac{1}{4n^2}$$

$$10) (7b+7) \div \frac{7b^2+35b+28}{b-6}$$

$$11) \frac{x-3}{1-7x} \cdot \frac{14x-2}{2}$$

$$12) \frac{x+8}{5x-2} \cdot \frac{15x^2-26x+8}{24x^2-32x}$$

$$13) \frac{k+10}{6k^2-30k} \div \frac{-3k^2+32k-64}{18k^2-48k}$$

$$14) \frac{70x+40}{42x^2+24x} \cdot \frac{30x^2-6x}{5x^2-11x+2}$$

$$15) \frac{10r^2-43r+28}{-5r^2+29r-20} \div \frac{2r-7}{2r+14}$$

$$16) \frac{7m^2-18m-40}{49m+42} \cdot \frac{35m+30}{35m+50}$$

$$17) \frac{14p-2}{30p-30} \cdot \frac{30p-30}{42p^3-6p^2}$$

$$18) \frac{3x^2+10x-8}{3x-2} \cdot \frac{10x-40}{10x+80}$$

$$19) \frac{14a^2-65a+56}{14a^2-51a+40} \cdot \frac{2a^2-17a+30}{2a-7}$$

$$20) \frac{3n-1}{5n^2-19n+12} \div \frac{3n^2+23n-8}{5n^2-34n+24}$$

## Answers to Multiplying and Dividing Rational Expressions (ID: 1)

1)  $\frac{5}{9n}$

2)  $\frac{7}{18x}$

3)  $\frac{7m^2}{m-1}$

4)  $-\frac{2}{r+3}$

5)  $\frac{5}{v-8}$

6) 6

7)  $\frac{32n}{n+10}$

8)  $\frac{8a^2}{5}$

9)  $\frac{9}{n-10}$

10)  $\frac{b-6}{b+4}$

11)  $-(x-3)$

12)  $\frac{x+8}{8x}$

13)  $-\frac{(k+10)}{(k-5)(k-8)}$

14)  $\frac{10}{x-2}$

15)  $-\frac{2(r+7)}{r-5}$

16)  $\frac{m-4}{7}$

17)  $\frac{1}{3p^2}$

18)  $\frac{(x-4)(x+4)}{x+8}$

19)  $a-6$

20)  $\frac{n-6}{(n-3)(n+8)}$